

LIFE STRESS, MATERNAL INHIBITORY CONTROL, AND QUALITY OF
PARENTING BEHAVIORS

by

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DISSERTATION ABSTRACT

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Negative life stress and maternal inhibitory control are both critical ingredients involved in the shaping and maintaining of the quality of parenting behaviors. This study explored both how the experience of stressful life events and inhibitory control relate to two particular types of parenting behaviors: harsh/controlling and autonomy-supportive. Given that these two types of parenting have broad implications for children's developmental trajectories, it is important to further enhance our understanding of the etiological factors that both shape and maintain parenting practices. Utilizing a high-risk sample (i.e. low SES, high presence of documented child maltreatment) of mothers with pre-school aged children, this study did not support the relationship between the experience of stressful life events, maternal inhibitory control and quality of parenting. However, post hoc analyses of life stress using a measure of objective SES did yield a significant link between stress and the presence of autonomy-supportive parenting. This study expands the current understanding of how stress and inhibitory control relate to parenting behaviors. Implications of this study for practice and research are discussed.

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CHAPTER I

INTRODUCTION

Parenting practices shape the developmental trajectories of children physically, behaviorally, and psychologically (Choe, Olson, & Sameroff, 2014; Lengua et al., 2014; Taylor, Eisenberg, Spinrad, & Widaman, 2013). Guidance on how to be a better parent is ubiquitous in our culture, and a wide body of research suggests that good parenting requires more than parental motivation or knowledge about how to parent. Instead, positive parenting behaviors emerge and are maintained as a result of a confluence of parental and contextual factors (Kotchick & Forehand, 2002). While many of these factors have been studied, more research is needed on how particular types of parenting behaviors are related to these factors and their interactions.

Both positive (e.g., warm, supportive, responsive) and negative (e.g., harsh, controlling, unresponsive) types of parenting behaviors have a significant impact on child development. One type of negative parenting is harsh/controlling parenting, which refers to parenting behaviors that can be likened to the concept of authoritarian parenting, as these behaviors are characterized as minimally warm and responsive. The persistent presence of harsh/controlling parenting behaviors impedes children's healthy development in a variety of ways. Harsh/controlling parenting correlates with a wide range of negative behavioral and physiological regulatory outcomes (Moilanen, Shaw, Dishion, Gardner, & Wilson, 2010; Skowron et al., 2013; Winsler, Diaz, McCarthy, Atencio, & Chabay, 1999), including increased aggression and oppositional behaviors in children and adolescents (Belsky & Barends, 2002; Deater-Deckard, Wang, Chen, & Bell, 2012; Eisenberg et al., 2005; Goodnow, 2002). Other negative outcomes linked with this type of parenting include decreased social competence (Steinberg, 2001) and higher rates of a wide array of psychological disorders (Dealt, 2010; Murray, Creswell, & Cooper, 2009;

Hallquist, Hipwell, & Stepp, 2015). Generally speaking, harsh/controlling parenting does not bode well for child development.

On the other side of the parenting coin, one type of positive parenting is autonomy-supportive parenting; this is characterized by warmth and support for a child's autonomous actions. Autonomy-supportive parenting has been linked with many desirable developmental outcomes for children of all ages. This is because it provides scaffolding and places a priority on promoting a child's ability to engage in autonomous self-regulation, which is thought to result in the internalization of these regulatory processes. For example, it is associated with increases in both toddlers' and pre-school aged children's executive functioning, both immediately (Bibok, Carpendale, & Müller, 2009) and over time (Bernier, Carlson & Whipple, 2010; Landry, Miller-Loncar, Smith, & Swank, 2002; Smith, Landry, & Swank, 2000). Additional outcomes associated with autonomy-supportive parenting of pre-school aged children include increased social competence (Landry, Smith, Swank, & Miller-Loncar, 2000), improved attentional control (Bibok et al., 2009), and better self-regulatory competence in academic contexts (Neitzel & Stright, 2004). Overall, autonomy-supportive parenting is more conducive to better child outcomes.

Since different types of parenting are conducive to such discrepant developmental outcomes, it is important to examine etiological factors that may be associated with the development and maintenance of differences in parenting quality. Parenting is not a static entity, but rather an ongoing process nested within an ecological framework (Kotchick & Forehand, 2002). In other words, there are both risk and protective factors that shape parenting across a variety of contexts, ranging from individual differences in parents to the immediate home environment, and even to broader societal forces. Furthermore, these risk and protective factors

often fluctuate over time. In this study, I looked at factors from two different contexts.

Specifically, I examined the extent to which contextual (stressful life experiences) and maternal factors (inhibitory control) correlated with two different types of parenting behavior, one that is generally considered to be positive and another that is often considered less-desirable. There is evidence that both life stress and maternal executive functioning in general directly correlate with quality of parenting behavior. However, less is known about how specific elements of executive functioning (such as inhibitory control) and the interplay between it and stress relate to parenting quality for parents of young children.

The following sections are organized as follows: First, I describe the current, relevant literature on quality of parenting, with an emphasis on harsh/controlling and autonomy-supportive parenting. Second, I provided an overview of the available literature on the influence of life stressors and maternal inhibitory control on quality of parenting for parents of pre-school aged children. Third, I describe my research questions and my hypotheses. Fourth, I discuss my participants, variables, and analytic strategy. Fifth, I report the results of my initial research questions and then discuss post-hoc analyses and findings. Finally, I provide possible interpretations of my findings, identify strengths and limitations of my study, and discuss implications for future research and clinical practice.

CHAPTER II

LITERATURE REVIEW

Parenting Quality

Harsh/controlling (a type of negative parenting) and autonomy-supportive (a type of positive parenting) are two particular types of parenting behavior that have important implications for child development. Most of the existing parenting research focuses on harsh/controlling parenting, while autonomy-supportive parenting has received less attention (Belsky, Schlomer, & Ellis, 2012; Bernier & Lalonde, Crandall et al., 2015; Deater-Deckard, et al., 2012; Kaap-Deeder et al. 2015). Harsh/controlling parenting is akin to the concept of authoritarian parenting; it is characterized by minimal warmth and an emphasis on child compliance as the primary goal (Silk, Morris, Kanaya, & Steinberg, 2003). Conversely, the concept of autonomy-supportive parenting is relatively new, and refers to the active support of the child's ability to be self-initiating and autonomous (Ryan, Deci, Grolnick, La Guardia, 2006), which is particularly important for younger children. It is important to note that autonomy-supportive parenting is not parental permissiveness or lack of involvement, but rather is the intentional and engaged cultivation of children's autonomous self-regulation, beyond mere behavioral compliance (Joussemet, Landry, & Koestner, 2008). A more comprehensive understanding of the risk and protective factors for these two types of parenting may help to enhance the development of effective parenting interventions.

Both harsh/controlling and autonomy-supportive parenting behaviors share a variety of overlapping etiological factors stemming from maternal and environmental qualities. Belsky's Process Model of Parenting (1984), a prominent ecological perspective on parenting grounded in decades of research and theory, points to three spheres of influence on parenting practices: 1)

parental origins, psychological functioning, and resources, 2) child characteristics, and 3) contextual sources of stress and support (p. 83). According to Belsky's model, parents who possess the sustained capacity to engage with their children in a warm and responsive manner are the most equipped to provide developmentally appropriate and growth promoting care (Belsky, 1984). Stress that arises from work, marital, or other social discord can also undermine parental competency. This study aimed to evaluate the interplay between aspects of the parenting environment, maternal characteristics, and variations in quality of parenting irrespective of child characteristics. Specifically, I utilized measures of observed maternal inhibitory control and reported experience of stressful life events within the past year, and examined how these relate to the quality of observable parenting behaviors in mother-child interactions during challenging lab tasks.

While child characteristics were not the focus of this study, it is important to briefly mention the relevance of child age and gender on quality of parenting behavior. Research has found that typically, as child age increases, the presence of positive parenting behaviors tends to also increase and conversely, the presence of negative behaviors decrease (Harvey, Matte-Gagné, Stack, Serbin, Ledingham, & Schwartzman, 2016; Matte- Gagné, Bernier, & Gagné, 2013). This relationship is likely related to the fact that children's cognitive development and ability to act autonomously dramatically improve throughout the first few years of life. In other words, as children get older, they are easier to parent. The effects of child gender on parenting are less straightforward. While some studies have found child gender to have no association with the quality of parenting observed (Deater-Deckard & Dodge, 1997; McKee, Roland, Coffelt, Olson, Forehand, Massari, & Zens, 2007; Mistry, Vandewater, Huston, & McLoyd, 2002), others have found some effects of child gender on parenting practices. Moreover, studies that have found

significant relationships between child gender and quality of parenting yield complicated results, in that marital quality and parent gender may confound the ways in which child gender impact quality of parenting behaviors (Bernier, Jarry Boileau, & Lacharite, 2014; Kerig, Cowan, & Cowan, 1993).

Harsh/controlling parenting. Harsh/controlling parenting is one notable type of negative parenting; as the name suggests, it is critical, lacking in warmth, and often punitive. This type of parenting is characterized by aversive responses to children's bids for autonomy, including parental use of pressure to control a child's behavior, focus on parental rather than child perspective, less warmth, and more critical and directive statements and behaviors (Grolnick et al., 2014; Roth & Assor, 2012). Harsh/controlling parenting is one of the most studied types of parenting in the literature (Crandall, Deater-Deckard, Riley, 2015), and there are several maternal factors that are linked with an increased likelihood of harsh/controlling parenting, including depression and other psychological problems (Conger, Patterson, & Ge, 1995; Dubowitz et al., 2011), substance use (Kelley et al., 2015), maternal exposure to early life stress and trauma (Pears & Capaldi, 2001), experience of own caregivers as harsh/controlling (Noll, Clark, & Skowron, 2015), parenting stress (e.g., stressors directly related to child characteristics; Deater-Deckard, Wang, & Chen, 2012), and life stress (Barajas-Gonzales & Brooks-Gunn, 2014; Kelley, 2003; Pianta & Egeland, 1990).

Autonomy-supportive parenting. Positive parenting is generally described as parental patterns of behavior toward children that are warm, responsive, and have high levels of positive expressivity and autonomy support. Accordingly, one type of positive parenting is autonomy-supportive parenting, which is a repertoire of parenting behaviors aimed at supporting children's goals, choices, volition, and self-efficacy (Grolnick & Ryan, 1989). A balance of scaffolding

with acknowledging and respecting the child's perspective and decision-making abilities is a hallmark of this type of parenting (Matte-Gagne, Bernier, & Lalonde, 2015), providing the child with a strong foundation for the psychological development of autonomy, competence, and relatedness (Bernier et al., 2010; Kaap-Deeder et al., 2015). Although less is known about predictors of autonomy-supportive than harsh/controlling parenting behaviors, relevant studies confirm that both maternal and environmental characteristics are at play, including parenting stress, attitudes about parenting and parenting self-efficacy (Grolnick, Price, Beiswenger, & Sauck 2007), maternal disposition (Kaap-Deeder et al., 2015), multigenerational influences (e.g., mothers' recollections of how they themselves were parented; Noll, Clark & Skowron, 2015) and higher socioeconomic status (SES) as measured by averaging mother's education level and family income (Harvey et al., 2016).

Finally, autonomy-supportive parenting is suggested to be more cognitively taxing than harsh/controlling parenting (Crandall et al., 2015). Autonomy-supportive parenting takes more time and requires some degree of premeditation, which makes it a more proactive approach to parenting. Conversely, harsh/controlling is more reactive. The goal of autonomy-supportive parenting is to help children internalize the ability to self-regulate rather than simply having them comply with parental demand, whereas the goal of harsh/controlling parenting is simply child compliance (Silk et al., 2003). In order to engage in autonomy-supportive parenting, parents must often suppress dominant, reactionary responses they may have toward their children, which would be expressed as harsh/controlling parenting behaviors, and supplant these with behaviors that are more conducive to scaffolding and guidance. This suppression of the dominant responses for a more favorable one relates directly to inhibitory control, which is discussed in a later section.

Life Stress and Parenting Quality. Various types of environmental stress and adversity, such as low SES (e.g., maternal education, income), negative life experiences, (e.g., death of a family member, divorce, loss of job), parenting daily hassles (e.g., being nagged or whined at) for example, are related to unfavorable outcomes in child development (Belsky, Bell, Bradley, Stallard, & Stewart-Brown, 2006; Crnic, Gaze, & Hoffman, 2005; Crnic & Greenberg, 1990; Harvey et al., 2016). One reason it is important to understand the interplay between different types of life stress and parenting is because parenting behaviors are one proposed mechanism through which environmental sources of stress negatively impact child developmental outcomes (Bronfenbrenner & Morris, 2006; Crnic & Greenberg, 1990; Crnic et al., 2005; Evans, Li, & Whipple, 2013). Some examples of problematic parenting outcomes related to higher levels of stress include decreases in nurturing and involved parenting in families exposed to higher levels of cumulative risk (Trentacosta et al., 2008), decreases in maternal warmth and responsiveness vis-à-vis work-family conflict (Cooklin et al., 2014), and decreased parental sensitivity related to family poverty (Blair & Raver, 2012).

One specific type of stress is the accumulation of negative stressful life events, which is known as a “life-events approach” to operationalizing stress. Notably, a literature search of PsycNET data base using key words “life experiences survey,” “life-events approach” and “parenting” yielded only studies that had been conducted prior to 2005 that were relevant to this one. Although there is precedent for using this measure of stress in studies of parenting behavior, it has not been used recently. The accumulation of these discrete experiences has been shown to influence parenting behaviors by decreasing parental warmth and responsiveness and increasing harsh/controlling behaviors as measured by home observations, mother-child interactive laboratory (both free-play and teaching) tasks, and parent self-report measures of the

parent-child relationship (Belsky, 1984; Crnic et al., 1983; Crnic & Greenberg, 1990; Dunn, Davies, & O'Connor, 2000; Pianta & Engeland, 1990). Moreover, how an experience is cognitively appraised (e.g., the degree to which it is perceived as influential and whether it is seen as positive or negative) is key in predicting how it will impact the wellbeing (Lazarus et al., 1985; Sarason, Johnson, & Siegel, 1978). As such, a life events approach to understanding stress (e.g., assessing the accumulation of negative life experiences over a given period of time) is only of value in predicting the presence of other outcomes (such as parenting behavior) when mothers' cognitive appraisal of the importance and impact of these events is also assessed and operationalized (Crnic & Greenberg, 1990). The cumulative effect of these discrete stressful life events is more predictive of outcomes in parenting behaviors than any a single event alone (Evans, Gonella, Marcynyszyn, Gentile, & Salpekar, 2005; Pianta & Egeland, 1990). To date, no studies have utilized a life-events approach to explore the relationship between stress, maternal inhibitory control, and parenting quality. Given the demonstrated value of utilizing the accumulation of stressful life events in predicting other parenting outcomes, I propose that it may also shed light on the development and maintenance of parenting behaviors in conjunction with maternal cognitive resources, and thus included it in this study. Quite simply, when parents are faced with attending to numerous stressful life events, their cognitive resources (such as inhibitory control) may be tied up in non-parenting matters; the possibility of moderation will be addressed in more detail below.

Maternal Inhibitory Control and Parenting Quality. Broadly speaking, executive functioning (also referred to as executive control or cognitive control) is a set of cognitive processes which enable the regulation of both thoughts and emotions by allowing one to pause and reflect on a contextually appropriate, goal-directed course of action rather than acting

impulsively (Baddeley, 1998). Currently, executive functioning is largely conceptualized as having three theoretically and empirically validated facets: shifting (shifting between tasks or mental sets), updating (updating and monitoring information via working memory representations), and inhibition (inhibition of dominant or prepotent responses; Li, Chung, Vanyukov, Wood, Ferrell, & Clark, 2015; Miyake, Friedman, Emerson, Witzki, Howerter, & Wager, 2000). According to a seminal study by Miyake and colleagues (2000), “Confirmatory factor analysis indicated that the three target executive functions are moderately correlated with one another, but are clearly separable” (p. 49). Executive functions allow individuals to self-regulate their thoughts, feelings, and behaviors by utilizing abilities such as working memory, set shifting, attentional control, cognitive flexibility, effortful control, and inhibitory control (Diamond, 2013; Friedman & Miyake, 2017; Lezak, 2004). Engaging in these processes takes effort, and they are useful when relying on instinct/automatic responses alone would be ill advised (Diamond, 2013). Furthermore, these functions are thought to be foundational components of the capacity to engage in a variety of parenting behaviors (Barrett & Fleming, 2011; Crandall et al., 2015). Although researchers have only recently begun to study the relationship between parental executive functioning and quality of parenting behaviors, evidence to date confirms that maternal executive functioning overall is a critical element in the development and maintenance of healthy parenting behaviors, as higher levels correlate to warmer, autonomy-supportive behaviors and lower levels are related to more harsh and controlling ones (Bridgett et al., 2011; Bridgett et al., 2013; Deater-Deckard et al., 2012; Crandall, Deater-Deckard, & Riley, 2015; Valiente et al., 2012).

Studies are only beginning to explore how specific subcomponents of executive functioning are related to parenting quality. For example, some studies have found that greater

maternal capacity for effortful control (as measured by self-report via the Adult Temperament Questionnaire) was related to less harsh/controlling parenting behaviors and to more proactive, pro-social parenting behaviors (Bridgett et al., 2011; Bridgett et al., 2013; Valiente et al., 2012). Other studies have found that working memory (measured with a laboratory spatial memory task) and attention control (using scores derived from the Wisconsin Card Sort) were positively correlated with maternal sensitivity (Chico et al., 2014) and inversely related to harsh and reactive parenting (Deater-Deckard et al., 2010). Generally speaking, lower levels of executive functioning robustly correlate with higher rates of negative parenting behaviors (Crandall et al., 2015), while higher levels correlate with increases in maternal warmth, sensitivity, involvement, and consistency (Chico, Gonzalez, Ali, Steiner, & Fleming, 2014).

One core component executive functioning that has received very little attention in this literature to date is inhibitory control. As described above, inhibitory control refers to the ability to suppress a prepotent or automatic response that may be less desirable in a particular situations in favor of a non-dominant, goal-directed, contextually-appropriate response (e.g., studying for an exam instead of playing video games; holding back laughter when it would be socially inappropriate and providing a supportive, empathic response instead; Bridgett, Oddi, Laake, Mudock, & Bachman, 2013; von Hippel & Gonsakorale, 2005). Inhibitory control could likely help parents to flexibly adapt, learn, and grow their parenting abilities vis-à-vis the ever-changing demands of interacting with young children. Although maternal measures of intelligence are related to parenting quality, inhibitory control may actually be more predictive of positive parenting than intelligence because it taps into a parents' capacity to apply what they know about parenting in a given situation, rather than assessing simply the content of their knowledge (Galinsky, 2010). As described by Diamond (2013), "having the ability to exercise

inhibitory control creates the possibility of change and choice” (p. 2). For example, mothers might have the knowledge that ignoring minor misbehavior (e.g., whining instead of asking for something politely) is an effective strategy for shaping children’s behavior, yet it is inhibitory control that might help them to suppress the inclination to snap or scold and instead use a planned-ignore strategy. Likewise, inhibitory control comes into play with respect to more than just the effectiveness of parenting behaviors, as mothers with poorer regulatory capacities are at a higher risk of perpetrating maltreatment, the most severe form of harsh/controlling parenting (Henschel, Bruin, & Möhler, 2013; Skowron, Kozlowski, & Pincus, 2010).

One study that explored inhibitory control (measured using the Stroop Color Word test) and its relationship to parenting did so by including it in a composite measure of executive functioning (Deater-Deckard et al., 2012). Deater-Deckard and colleagues (2012) found that in lower risk settings, greater inhibitory control (in conjunction with working memory and attentional control) was related to less harsh/controlling parenting behaviors that may be elicited by challenging child behaviors, and instead make a concerted effort to engage in more autonomy-supportive behaviors. It stands to reason that inhibitory control may be a large contributing factor linking executive functioning and quality of parenting behaviors. This is because a higher capacity for inhibitory control might allow mothers the flexibility to tend toward more proactive rather than reactive parenting behaviors (Hughes & Gallone, 2010; Chico et al., 2014), such as warmly and responsively providing intentional guidance and support for their children rather than engaging in knee-jerk behaviors that suppress child-autonomy.

This type of regulation (e.g., inhibitory control) could serve to help parents suppress reactive behaviors and while allowing them to parent more deliberatively (e.g., warmly and responsively providing intentional guidance and support in the development of child autonomy).

For example, consider a mother helping her young child get dressed, though the child wants to do it him/herself. This can be a slow and potentially frustrating process, and at least in a context in which the dyad has unlimited time for the child to dress him/herself, a parent with lower regulatory capacity might respond to their own frustration with the child by taking over and doing this for the child. Conversely, a mother with higher regulatory capacity can suppress this reaction of taking over her child's behavior in an effort to further her goals of getting the child quickly dressed, and instead provide warmth and scaffolding to help the child do this activity on his or her own. Over time, interactions such as this one in which a mother exerts self control in order to support her child's budding independence is expected to have significant implications on the child's ability to internalize and refine these regulatory processes as her own (Bernier & Lalonde, 2015; Silk et al., 2003).

While little is known in general about inhibitory control and parenting, even less is known about the nature of the relationship between maternal inhibitory control and parenting in higher risk environments (e.g., characterized by heightened sociodemographic and psychosocial risk; Crandall et al., 2015). These types of environments are, by their very nature, stressful. Stress, particularly the kind that results from sociodemographic risk factors, impacts many different areas of healthy functioning, and is also likely to interact with maternal regulatory capacities and subsequent parenting practices. For example, mothers from sociodemographically compromised environments are at an increased risk in general for engaging in harsh/controlling parenting and are less likely to display autonomy-supportive parenting (Belsky et al., 2007; Gutman, McLoyd, & Tokoyawa, 2005; Harvey et al., 2016). These SES differences may be attributable to class-based parental values and attitudes regarding the priority of child-obedience versus autonomy-related behaviors (Hoff, Laursen, & Tardif, 2002). Regardless of the

mechanism through which broader psychosocial considerations impact parenting, it would be useful for research to explore if and whether the various etiological factors that underlie parenting processes differ at points along the social strata. Specifically, a deeper understanding of how different factors work together to shape parenting across different contexts can help clinicians to tailor parenting interventions in a manner that will be more individualized for the family with whom they are working. This study focused on a sample of mothers from lower SES backgrounds, and approximately half of the participants have documented involvement with the Department of Human Services (DHS). It is possible that the relationship between components of maternal executive functioning, specifically inhibitory control, and quality of parenting behaviors may hold constant across various social contexts, yet there is not enough evidence from higher risk samples to confirm this (Crandall et al., 2015).

Negative Life Stress, Inhibitory Control, and Parenting

Research to date has not yet begun to unpack the specific components of executive functioning that may be related to quality of parenting behaviors for parents of pre-school aged children, hence my focus on inhibitory control specifically. Furthermore, although negative stressful life events on their own (Belsky et al., 2007; Belsky et al., 2012; Crnic, Gaze, & Hoffman, 2005) and maternal inhibitory control as one component of broader executive functioning (Deater-Deckard et al., 2012) are related to parenting behaviors, this study is unique in its approach to examining this particular combination of stress and inhibitory control. It is also unique in that it seeks to understand how these factors relate to quality of parenting in a sample of high-risk families.

Executive functioning serves as a foundational element of parenting, and likely interacts with environmental factors to shape quality of parenting behaviors (Crandall et al., 2015; Deater-

Deckard, 2014; Deater-Deckard et al., 2012). Furthermore, inhibitory control specifically may be important for parents who are under stress given the high cognitive demands of navigating challenging environments while also managing the ongoing difficulties associated with parenting young children (Deater-Deckard, 2014). The intersection of maternal inhibitory control and environmental factors such as the presence of stressful life events is important for increasing our understanding positive parenting outcomes (Bronfenbrenner & Morris, 2006; Crandall et al., 2015). While maternal inhibitory control is likely important in day-to-day parenting, it might function differently while parenting within the context of increased life stress (e.g., dealing with adverse life events). For example, as these regulatory capacities are allocated toward managing stress related to non-parenting tasks (e.g., dealing with familial grief/loss, having enough money to pay the bills, ensuring family members have access to adequate health care, and so forth), it is possible that these regulatory capacities are then less available to be directed toward parenting. In other words, when parents' individual resources are less tied up in adapting to or managing resources, they will have more to direct toward parenting.

Two recent studies that explored this particular type of moderation found that household chaos moderated the connection between maternal regulatory capacities and parenting behaviors (Deater-Deckard et al., 2014; Mokrova, O'Brien, Calkins, & Keane, 2010), however the direction of their findings differed. Deater-Deckard and colleagues (2014) examined the impact of chaotic home environments on the relationship between maternal executive functioning and self-reported harsh parenting of children ages 3-7 in the context of challenging child behaviors. They concluded, "Maternal executive functioning is critical to minimizing harsh parenting in the context of challenging child behavior, but this self-regulation process may not operate well in chaotic environments" (Deater-Deckard et al., 2014, p. 1084). In other words, higher levels of

maternal executive functioning were associated with lower levels of harsh parenting in calm environments, but this relationship was not present in contexts characterized by high levels of home chaos (Deater-Deckard et al., 2014). One possible explanation for this is that in low-stress environments, the cognitive processes associated with parenting behavior are able to operate automatically; mothers with higher levels of executive functioning are able to direct these resources to their parenting, thus minimizing less-desirable behaviors in response to their children. Conversely, in high-stress environments, regulatory executive functioning resources are redirected toward managing broader environmental demands and are thus not available for regulating parenting behaviors (Eysenck, Derakshan, Santos, & Calvo, 2007). Interestingly, the second study (Mokrova et al., 2010) found that in high levels of household chaos, the association between parental ADHD symptoms (specifically, attentional deficits) and parenting strategies was stronger. This suggests that compromised environments enhance parental deficits in regulation, thereby corresponding to less effective parenting behaviors. Building off of these findings that environmental stress does moderate the relationship between parental regulatory capacity and parenting behaviors (regardless of conflicting directions), it is reasonable to wonder whether there would be either an attenuation or amplification of the relationship between the subcomponents of maternal executive functioning, such as inhibitory control, and parenting quality vis-à-vis the heightened presence of stressful life events.

Study Purpose

Only recently have researchers begun to explore the role of regulatory capacity on parenting, yet the emerging evidence for this relationship is compelling. Furthermore, little is known about which particular elements of executive functioning, such as inhibitory control, relate to parenting. The goal of this study was to further the understanding of the direct and

interactive associations between adverse life experiences and maternal inhibitory control on quality of parenting. With its focus on high-risk families, the study also increases the understanding of how maternal executive functioning relates to the quality of parenting pre-school aged children in contexts beyond those characterized as low-risk. Using a sample of mothers and their pre-school aged children, this study addressed three primary questions:

1. Does greater reported life stress over the past year relate to lower levels of observed autonomy-promoting parenting and higher levels of harsh/controlling parenting behaviors during a challenging parent-child interaction task? I predicted that mothers who have experienced a higher frequency of stressful life events would exhibit more hostile/controlling and less autonomy-supportive parenting behaviors because their capacities for engaging in positive parenting are depleted by environmental demands.
2. Does higher maternal inhibitory control as measured by performance on the Stroop Color Word Test, relate to lower rates of hostile/controlling and higher rates of autonomy-supportive parenting behaviors as measured by observationally coded parenting behaviors during a parent-child interaction task? I predicted that mothers with higher inhibitory control would display a higher frequency of autonomy-supportive behaviors and less hostile/control parenting. Conversely, I anticipated that lower levels of inhibitory control would correspond to a lower frequency of autonomy-supportive behaviors and a higher frequency of hostile/control. Building on existing findings (Barret & Fleming, 2011; Crandall et al., 2015; Deater-Deckard et al., 2012), I reasoned that greater inhibitory control would enable parents in a high-risk sample to suppress their control-orientated behaviors and temper harsh or critical reactions in favor of engaging in warmer, more responsive and supportive parenting.

3. Does exposure to life stress as measured by the accumulation of negative life experiences over the past year moderate the effect of maternal inhibitory control on quality of parenting as measured by observationally coded parenting behaviors? Finally, with respect to the third question, I predicted that in parents who report higher levels of life stress, the relationship between maternal inhibitory control and autonomy-supportive and hostile/controlling parenting would be significantly weaker than that observed in mothers who report lower life stress. Conversely, under conditions of lower life stress, I predicted that the relationship between maternal inhibitory control and parenting behaviors would remain intact. In other words, in the context of greater self-reported life stress, the link between maternal inhibitory control and parenting behaviors will be diminished, and perhaps no longer significant. This is based partly on Deater-Deckard and colleague's (2014) findings that the link between parenting quality and maternal executive functioning became non-significant in chaotic environments. One possible explanation for this is that in times of high stress, regulatory executive functioning resources are redirected toward managing broader environment demands rather than being more available for regulating parenting behaviors.

The results could potentially inform parenting interventions, as there is evidence that adult regulation processes are malleable vis-à-vis focused, behavioral interventions (Baumeister, Gailliot, DeWall, & Oaten, 2006). For example, perhaps parenting interventions may expand to include cognitive training when indicated (Madalia & Bowie, 2016). In general, a richer understanding of the nuances of the relationship between maternal inhibitory control, stress and quality of parenting may also serve to inform parenting interventions that are specifically aimed at increasing autonomy-support while decreasing harsh/controlling forms of parenting.

CHAPTER III

METHODS

Participants

I utilized a secondary data analysis for my study. Data are from a study funded by the National Institutes of Health Research grant 5R01 MH09328 (PI: Elizabeth Skowron, PhD); all data were used with Dr. Skowron's permission. Participants were mother-child dyads recruited from two sources: Department of Public Welfare Child Protective Services (CPS) agencies, and a database comprised of locally published birth announcements in local newspapers. All families with documented child maltreatment (CM) were recruited from five CPS agencies serving mainly rural, low-income families in a central Mid-Atlantic state. Due to the fact that participants from CPS that have documented CM present tend to also be disproportionately representative of lower SES backgrounds (Skowron et al., 2013; Skowron et al., 2011), a socio-demographically comparable sample of low-income, non-CM mothers was recruited from Department of Public Welfare agencies and a local birth announcement database. Eligible participants were mothers of at least 18 years of age who were living with their preschool aged child and were fluent in English.

Participants were 213 mother-child dyads, and children's ages ranged from 3 to 5 years ($M = 3.75$, $SD = .74$). The majority of participating mothers were White (91.1%). Mother's average age was 29.8 years ($SD = 6.06$), 41.9% were married, 61.2% had a high school degree or less, and 71.8% reported an annual income of less than \$30,000. Of the children who had been exposed to child maltreatment, 22.5% had experienced physical abuse and 66.7% had experienced physical neglect, based on CPS documentation and coded using the Maltreatment

Classification System (Barret et al., 1993). CM and non-CM children did not differ on dimensions of child age $t(211) = 1.20, p = .69$, gender, or ethnicity.

Procedures

All procedures used in this study were approved and monitored by the Office for Research Protections. Mother-child dyads completed a 3-visit protocol over a 2-3 week period. The two home-visits collected data for psychosocial and cognitive assessments. A subsequent 2.5-hour laboratory visit assessed observable parent-child interactions across a variety of laboratory tasks, parental reports of child behavior, physiological functioning, and children's inhibitory control on performance tasks.

Quality of parenting was assessed via observational coding during the Duplo Puzzle and Train Tasks. In the Train task, dyads completed a two-dimensional puzzle consisting of 9 pieces. In the Duplo task, dyads are asked to recreate an 11-piece, three-dimensional Duplo puzzle with 12 disassembled pieces. During each dyadic task, mothers were instructed to provide verbal guidance but are asked not to touch the puzzle pieces. Each task lasted for 5 minutes, and provided an opportunity for observation of joint mother/child interaction during the dyadic problem-solving tasks. Mother-child interactions during the tasks were transcribed and with video-recordings, subjected to observational coding. A team of two trained experimenters conducted all procedures. Families were paid \$150 to complete the protocol, provided transportation, snacks, and small toys/gifts were provided to the children for participating.

Measures

Parenting Quality. Data obtained during the mother-child interactive tasks (Duplo and Train) were coded using the Structural Analysis of Social Behavior (SASB), a microanalytic coding system that captures moment-by-moment interactions, including both verbal and non-

verbal components of dyadic communication (Benjamin, 1996; Benjamin & Cushing, 2000). SASB has been used previously to code brief parent–child interactions (e.g., Florsheim et al., 1996; Skowron et al., 2010). Participants were video-recorded during of the Train and Duplo dyadic challenge tasks during their lab visit. Videotapes were then transcribed and unitized into “speaking” turns (defined as a single transactional turn) bound on either side by one’s partner. Coders, who had undergone 60 hours of training, worked from videotapes and verbatim transcripts to assign a code to each individual transaction by determining (a) focus, (b) degree to warmth/affiliation, and (c) degree of interdependence (ranging from autonomy to control/submission). SASB cluster codes characterizing mother’s parenting behavior were obtained and assigned to each interaction. Interrater reliabilities were assessed on 15% of tapes coded, and yielded weighted kappas ranging from .64 - .84 ($M = .74$), which is on par with those reported in other studies of SASB-coded parent–child interactions (e.g., Skowron et al., 2010).

There are 16 possible codes that can be assigned for each speaking turn. The first number in each cluster indicates the direction: 1 for transitive, 2 for intransitive. The second code indicates position on the SASB circumplex. Positive behaviors include clusters 2 (affirm/understand, disclose/express), 3 (love/approach, joyfully connect), and 4 (nurture/protect, trust/rely). The following clusters are indicative of negative behaviors: 6 (blame/criticize, sulk/appease), 7 (attack/reject, protest/recoil), and 8 (ignore/neglect, wall-off/avoid). Parenting behavior was assessed as mother’s transitive behaviors (e.g., verbal and non-verbal behaviors directed toward their child). Of interest to this study were Affirm Autonomy (cluster 12) and a combination of Strict Control and Criticize (clusters 15 + 16). Given its position on the SASB model, Affirm Autonomy codes are indicative of both warmth and autonomy-support; this code will be used as indicators of “autonomy-supportive parenting.” Conversely, Strict

Control/Criticize is positioned to reflect harshness and control, and will thus serve as a measure of “harsh/controlling” parenting behavior. SASB parenting scores are computed for the Duplo and Train tasks separately. For this study, task scores for Parents’ Affirm Autonomy and Strict Control/Criticize for both tasks combined will be used as the dependent variable. Scores for each cluster are reported as proportions, ranging from values of 0 to 1. These were calculated based on the number of maternal communications that occurred within a particular SASB cluster, divided by the total number of mother’s speaking turns. For example, an Affirm Autonomy score of 0.23 would indicate that the mother engaged in autonomy-affirming parenting behavior during 23% of her interactions. Similarly, a Strict Control/Criticize score of 0.17 would indicate that 17% of the mother’s interactions with her child during these tasks are characterized as hostile/controlling. In this sample, scores for autonomy-supportive parenting ranged from 0 to 0.78, and for hostile/controlling parenting ranged from 0 to 0.85.

Life Stress. The Life Experiences Survey (LES) is a self-report, 50-item survey consisting of positive and negative life events experienced over the previous year that are common to individuals in a wide variety of settings; examples of items include death of a close family member, marriages and divorces, serious illness or injury, loss of job, and so forth. (Sarason, Johnson, & Siegel, 1978). Items are endorsed and rated on a 7-point Likert scale ranging from “extremely negative” (-3) to “no impact” (0) to “extremely positive” (3). The LES was administered on a computer by a trained interviewer during the second home visit. This study used only the negative life stress score, calculated by summing the number of events that a participant rated as negative. Test-retest correlations for the negative change scores were .56 and .88 ($p < .001$) indicating moderate to good reliability (Sarason et al., 1978). In terms of validity, the negative life change score is significantly and positively correlated with measures of anxiety,

depression and certain types of personal maladjustment. The scale responses are found to be free from social desirability biases (Sarason et al., 1978). For this sample, scores ranged from 0 to 40 (out of a possible 150), with higher scores indicating higher severity of negative life events.

Inhibitory Control. The Stroop Color Word Test (Golden & Freshwater, 2002) assesses processing speed, selective attention, and response inhibition. It consists of three separate tasks, which include word reading, color naming, and color-word interference. The color word interference task will be used as a measure of inhibitory control, as it is an assessment of the ability to sort visual information and to selectively react to this information by repressing a dominant response in favor of a non-dominant one (e.g., saying the name of the color of ink instead of reading the word), as per verbal instructions (Golden & Freshwater, 2002). The interference score is ipsative (as opposed to normative score), meaning that it is calculated based on variations in a participant's own abilities (Chafetz & Matthews, 2004). Specifically, it is calculated by the predicted amount of words read aloud per second on the last page minus the actual amount of words read aloud per second on the last page; this ensures that the score reflects the respondent's inhibitory abilities (e.g., saying the name of the ink color instead of the more dominant behavior of reading the word) rather than merely reflecting the ability to read words or name colors. This is also considered a measure of cognitive flexibility and sustained attention (Lezak, 2004). Test-retest reliability of the interference measure is .70, and this measure has demonstrated high construct validity (MacLeod, 1991). Scores were expressed as T-scores, and for this sample ranged from 40 to 80.

Covariables. *Socioeconomic Status (SES).* Adler's index of Objective SES (Adler et al., 2000; Operario, Adler, & Williams, 2004; Wilkinson, 1999) is used to assess family socioeconomic status. Objective SES is comprised of education, household income, and

occupation: education is measured by highest degree obtained and is coded into 4 categories; household income is coded into 4 categories; and occupation is coded into 3 categories (blue collar/service, clerical/self-employed, and professional/managerial). Objective SES is a composite measure, created by standardizing each individual variable and taking the mean. Given that both maternal education and household income (which tend to be highly correlated) are predictive of a wide variety of both parenting practices and child outcomes (Davis-Keen, 2005; Fox, Platz, & Bentley, 1995; Kalil, Ryan, & Corey, 2012), a comprehensive measure of SES that accounts for these individual factors appears to be the most parsimonious approach to operationalizing SES. Scores were expressed as z-scores, and for this sample ranged from -1.24 to 2.71.

Child Maltreatment (CM) Status. Mothers with poorer regulatory capacities are at a higher risk of perpetrating maltreatment (Skowron et al., 2010), and given that a portion of the sample was involved with CPS for documented cases of child maltreatment, the presence of maltreatment was explored as relevant control variables for this model. Data for CM were collected based on subtype and severity. Subtypes include both physical abuse and physical neglect. *Physical abuse* was coded for evidence of caregiver-inflicted physical injury to the child by non-accidental means, and *physical neglect* was coded based on documentation that caregiver had failed to meet child's basic needs. Maltreatment severity ranges on a 5-point scale from 1-5, with 1 being least severe (ratings of severity based on CPS documentation). For the purpose of this study, a dummy variable for child maltreatment was created with '0' indicating no maltreatment, and 1 indicating the presence of any type or severity of maltreatment.

Mother age. While Chico and colleagues (2014) found that maternal age moderated the relationship between executive functioning and parenting in a population that included teen

mothers, maternal age is often not a significant predictor of executive functioning or working memory in samples with adult mothers. Maternal age was included in the exploratory analyses in order to determine whether or not it would be an appropriate covariate for this particular study.

Child age. There is some evidence that child age moderates the relationship between maternal executive functioning and quality of parenting (Bridgett et al. 2011) in studies that include infants and young children, and was positively correlated with autonomy-supportive parenting in a sample of children aged 1-6 (Harvey et al., 2016); however, this relationship may be less influential in a more homogenous sample (e.g., children are all within a pre-school age range, as in this study). Age was measured in years and as per the exclusion criteria, ranged from 3 to 5.

Child gender. While some clarity is still needed on ways that child gender impacts parenting, there is enough evidence to suggest that there is some observable effect (Bernier, Jarry Boileau, & Lacharite, 2014; Kerig, Cowan, & Cowan, 1993). Subsequently, child gender was included in preliminary analyses to determine whether it would be included as a covariate.

Analytic Strategy

To address my first research question, I ran a two-step hierarchical multiple regression to determine if the addition of negative life experiences (LES negative change score) improved the prediction of the presence of autonomy-supportive parenting behavior over and above objective SES, child age, and the presence of CM. To determine if the second part of Research Question 1 (i.e., life stress predicting hostile/controlling parenting), I examined if the addition of negative life experiences (LES change score) to the model improved the prediction of the presence of hostile/controlling parenting behavior over and above objective SES, child age, and the presence

of CM. I used a parallel process for my second research question. I ran a two-step hierarchical multiple regression to determine if maternal inhibitory control predicted autonomy-supportive parenting and whether maternal inhibitory control (i.e., Stroop color-word interference) improved the prediction of the presence of autonomy-supportive parenting behavior over and above objective SES, child age, and the presence of CM. Last, I tested the effect of an interaction term I created with LES negative change and a mean-centered Stroop color-word interference score, using a three-step hierarchical regression.

In addition to the original analytic plan, I ran post-hoc regression analyses to further explore the connection between life stress and both autonomy-supportive and hostile/controlling parenting. Rationale for post-hoc analyses is discussed in further detail in my results section. For these post-hoc analyses, I followed the same analytic strategy used to test my original hypotheses, however substituted objective SES for the negative life experiences variable to see if a different, broader measure of stress would significantly predict the presence of different types of parenting behaviors. Specifically, I ran two hierarchical multiple regressions to determine if the addition of objective SES improved the prediction of autonomy-supportive and then hostile/controlling parenting behavior over and above child age, the presence of CM, and negative life experiences. I also re-tested my moderation hypotheses by running two hierarchical regressions to test an interaction term between objective SES and a mean-centered Stroop interference score. Although negative life experiences did not moderate the relationship between maternal inhibitory control and quality of parenting in my study, I wanted to see if a different measure of life stress (e.g., SES) would moderate this relationship, as previous studies and theory suggest that this relationship might exist (Belsky, 1984; Belsky et al., 2007; Deater-Deckard et al., 2012).

CHAPTER IV

RESULTS

Preliminary Analyses

I screened all variables in this study to ensure that the sample met regression assumptions of normality, linearity, independence of residuals, homoscedasticity, zero or few outliers, and the absence of multicollinearity (Pedhazur, 1997). First, I examined Q-Q plots to see if the data were distributed normally. Second, I inspected plots of partial regressions and of studentized residuals against predicted values to determine linearity. Third, I ensured independence of residuals by reviewing the Durbin-Watson statistics for each analysis, checking to see that $1.5 < d < 2.5$. Fourth, I visually inspected plots of studentized residuals against unstandardized predicted values to detect whether the data were homoscedastic. Fifth, I examined histograms to scan for outliers, assessing whether outlying cases were too large in number or deviation from a normal distribution. Last, I searched for the possibility of multicollinearity by assessing tolerance and variance inflation factor (VIF) against thresholds from Fox (1991), such that tolerance $> .20$ and VIF < 4.00 .

Regression assumptions held for each model, which includes Durbin-Watson statistics and values for tolerance and variance inflation factors. Both parenting-focused dependent variables (autonomy-supportive and hostile control) and the predictor variable Life Experiences Survey (LES)-negative change score demonstrated positive skew, thus I employed a logarithmic transformation (log 10) procedure to normalize these variables (Osborne, 2010). I calculated zero-order correlations (Weaver & Wuensch, 2013) among all variables of interest (see Table 1, which also lists *M* and *SD* for each predictor, covariate, and outcome). These correlations show significant relations between objective socioeconomic status, child age, and the presence of child

maltreatment (CM) with both types of parenting. Higher objective SES correlated positively with the presence of autonomy-supportive parenting ($r = .24, p < .05$) and negatively with the presence of hostile/controlling parenting ($r = -.17, p < .05$). Parents of older children displayed more autonomy-supportive parenting ($r = .26, p < .05$) and less hostile/controlling parenting ($r = -.20, p < .05$). The presence of CM correlated negatively with autonomy-supportive parenting ($r = -.16, p < .05$) and positively with hostile/controlling parenting ($r = .17, p < .05$). With respect to the predictor variables of interest—negative life experiences (LES) and Stroop interference score—neither related significantly to the presence of autonomy-supportive parenting or hostile/controlling parenting. Please refer to Table 1 below for a full summary of correlations.

Table 1
Summary of Intercorrelations, Means, and Standard Deviations

Variables	1	2	3	4	5	6	<i>M</i>	<i>SD</i>
1. Autonomy affirm	–						.47	.21
2. Hostile control	-.38**	–					.26	.16
3. LES negative change	-.06	.06	–				.69	.36
4. Stroop interference	-.00	-.04	-.12	–			53.76	9.82
5. Objective SES	.25**	-.17*	-.12	.07	–		-.02	.83
6. Child age	.25**	-.20**	-.04	.08	-.02	–	3.75	0.74
7. CM present	-.15*	.17*	.13	.08	-.50**	-.04	.57	.50

Note. Intercorrelations for all both dependent and independent variables, and covariates are presented above. Means and standard deviations are also represented. For Autonomy affirm and Hostile control, scores are ratios with higher values indicating that behavioral cluster was present for a higher percentage of the observed interactions. For LES negative change, higher scores indicate more severe responding. Objective SES is a standardized Z score, with higher values indicating increases in SES. Stroop interference is a T score with higher values indicating better performance on the task. Child age is measured in years. CM present is a dichotomous variable, with 1 indicating the presence of child maltreatment. Autonomy affirm = autonomy supportive parenting; Hostile control = hostile/controlling parenting; LES negative change = Life Experiences Survey negative change score; Stroop interference = Stroop interference T scores; Objective SES = Adler's Objective SES; CM present = Child maltreatment present.

* $p < .05$. ** $p < .01$

Negative Life Experiences and Parenting Behaviors

In my first research question, I asked: Does greater reported life stress over the past year relate to lower levels of observed autonomy-promoting parenting behaviors and higher levels of harsh/controlling parenting behaviors? I hypothesized that mothers who have experienced a

higher frequency of stressful life events would exhibit more hostile/controlling parenting behaviors and less autonomy-supportive parenting behaviors. As seen in Table 2, the full model (i.e., Model 2) of objective SES, child age, CM, and LES was statistically significant, $F(4, 178) = 6.62, p < .05$, although adding LES in the second model did not increase R^2 in a statistically significant way. The final model explains approximately 13% of the variance in autonomy-supportive parenting. In that model, the only significant predictors were objective SES ($\beta = 0.21, t = 2.63, p < .05$) and child age ($\beta = 0.27, t = 3.88, p < .05$). Greater objective SES and higher child age were related to greater autonomy-supportive parenting.

I found similar results when addressing the latter portion of my first research question, in which I regressed hostile/controlling parenting on the same set of predictor variables. The full model (i.e., Model 2) was statistically significant, $F(4, 160) = 4.08, p < .05$ and explained approximately 9% of the variance for hostile/controlling parenting (see Table 3). As with autonomy-supportive parenting, the addition of LES did not significantly increase variance explained. Age was the lone significant predictor ($\beta = -0.22, t = -2.88, p < .05$); child age was inversely related to the presence of hostile/controlling parenting.

Table 2
Hierarchical Regression for Autonomy-supportive Parenting and Negative Life Experiences

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Objective SES	.09	0.03	0.21**	.09	0.03	0.21**
Child age	.13	0.03	0.27**	.13	0.03	0.27**
CM	-.03	0.06	-0.04	-.03	0.06	-0.04
LES neg change				-.02	0.07	-0.02
R^2		0.13			0.13	
ΔR^2					0.00	

Note. $N = 182$. Objective SES = Adler's Objective SES; CM present = Child maltreatment present; LES negative change = Life Experiences Survey negative change score.

* $p < .05$. ** $p < .01$

Table 3
Hierarchical Regression for Hostile/Controlling Parenting and Negative Life Experiences

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Objective SES	-.04	0.04	-0.09	-.04	0.04	-0.09
Child age	-.12	0.04	-0.22**	-.12	0.04	-0.22**
CM	.12	0.07	0.14	.11	0.07	0.14
LES neg change				.04	0.09	0.03
R^2		0.09			0.09	
ΔR^2					0.00	

Note. $N = 164$. Objective SES = Adler's Objective SES; CM present = Child maltreatment present; LES negative change = Life Experiences Survey negative change score.

* $p < .05$. ** $p < .01$

Post-Hoc Analyses: SES and Parenting Behaviors

Given the null findings in the above analyses and the significant correlation between objective SES and both types of parenting, I ran post-hoc analyses to further explore the connection between psychosocial risk and both autonomy-supportive and hostile/controlling parenting. I ran two new sets of hierarchical regressions with objective SES as a predictor variable and included child age and presence of CM as covariates. As seen in Table 4, with respect to autonomy-supportive parenting, the full model (i.e., Model 2) of LES, child age, CM, and objective SES was statistically significant, $F(4, 178) = 6.62, p < .05$. Furthermore, the addition of objective SES in the second model yielded a statistically significant increases in R^2 ; $\Delta R = .04, p < .05$. The final model explains approximately 13% of the variance in autonomy-supporting parenting. Significant predictors were objective SES ($\beta = 0.21, t = 2.63, p < .05$) and the covariate child age ($\beta = 0.21, t = 3.88, p < .05$). Each unit increase in objective SES yielded

a 0.25 increase in the rate of autonomy-supportive parenting, and each additional year in child age yielded a 0.21 increase..

Next, I ran the same model as above with hostile/controlling parenting as the dependent variable. As seen in Table 5, the full model (i.e., Model 2) including LES, child age, CM and objective SES was statistically significant, $F(4, 160) = 4.08, p < .05$, however adding objective SES in the second model did not increase R^2 in a statistically significant way. Child age remained the only significant predictor variable in the final model ($\beta = -0.22, t = -2.88, p < .05$). Among older children, the presence of hostile/controlling parenting is lower; specifically, each additional year of child age corresponds to a .22 decrease in presence of hostile/controlling parenting.

Table 4
Hierarchical Regression of Autonomy-supportive Parenting and Objective SES

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
LES neg change	-.03	0.07	-0.03	-.02	0.07	-0.02
Child age	.12	0.03	0.26**	.13	0.03	0.27**
CM	-.10	0.05	-0.14	-.03	0.06	-0.04
Objective SES				.09	0.03	0.21**
R^2		0.09			0.13	
ΔR^2					0.04	

Note. $N = 182$. Objective SES = Adler's Objective SES; CM present = Child maltreatment present; LES negative change = Life Experiences Survey negative change score.

* $p < .05$. ** $p < .01$

Table 5
Hierarchical Regression Hostile/controlling Parenting and Objective SES

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
LES neg change	.04	0.09	0.04	.04	0.09	0.03
Child age	-.12	0.04	-0.21**	-.12	0.04	-0.22**
CM	.15	0.06	0.18	.11	0.07	0.14
Objective SES				-.04	0.04	-0.09
R^2		0.09			0.09	
ΔR^2					0.00	

Note. $N = 164$. Objective SES = Adler's Objective SES; CM present = Child maltreatment present; LES negative change = Life Experiences Survey negative change score.

* $p < .05$. ** $p < .01$

Maternal Inhibitory Control and Parenting Behaviors

In my second research question, I asked: Does higher maternal inhibitory control correlate with lower rates of hostile/controlling and higher rates of autonomy-supportive parenting behaviors? I hypothesized that mothers with higher inhibitory control would display a higher frequency of autonomy-supportive behaviors and less hostile/control parenting, and that mothers with lower levels of inhibitory control would display a lower frequency of autonomy-supportive behaviors and a higher frequency of hostile/control. As seen in Table 6, the full model for autonomy-supportive parenting (i.e., Model 2) of objective SES, child age, CM and maternal inhibitory control was statistically significant, $F(4, 196) = 6.89, p < .05$. Adding mothers' inhibitory control scores did not lead to a statistically significant increase in R^2 . The final model explained approximately 12% of the variance in autonomy-supportive parenting. The only significant predictors of autonomy-supportive parenting were objective SES ($\beta = 0.24, t$

= 2.99, $p < .05$) and child age ($\beta = 0.26$, $t = 3.90$, $p < .05$). Similar to the results above, higher objective SES and child age were related to greater autonomy-supportive parenting.

For hostile/controlling parenting, the full model (i.e., Model 2) of objective SES, child age, CM and maternal inhibitory control was statistically significant, $F(4, 178) = 3.35$, $p < .05$. Again, adding inhibitory control did not lead to a statistically significant increase in R^2 . The final model explained approximately 7% of the variance in hostile/controlling parenting with child age as the lone significant predictor ($\beta = -0.19$, $t = -2.61$, $p < .05$). See Table 7 for a full summary of results.

Table 6
Hierarchical Regression for Autonomy-supportive Parenting and Maternal Inhibitory Control

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Objective SES	.09	0.03	0.23**	.09	0.03	0.24**
Child age	.12	0.03	0.26**	.12	0.03	0.26**
CM	-.02	0.05	-0.02	-.01	0.05	-0.02
Stroop interfer				-.00	0.00	-0.03
R^2		0.12			0.12	
ΔR^2					0.00	

Note. $N = 200$. Objective SES = Adler's Objective SES; CM present = Child maltreatment present; Stroop interfere = Stroop interference T score.

* $p < .05$. ** $p < .01$

Table 7
Hierarchical Regression for Hostile/controlling Parenting and Maternal Inhibitory Control

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Objective SES	-.06	0.04	-0.13	-.06	0.04	-0.13
Child age	-.11	0.04	-0.19**	-.11	0.04	-0.19**
CM	.06	0.07	0.07	.06	0.07	0.07
Stroop interfer				-.00	0.00	-0.02
R^2		0.07			0.07	
ΔR^2					0.00	

Note. $N = 182$. Objective SES = Adler's Objective SES; CM present = Child maltreatment present; Stroop interfere = Stroop interference T score.

* $p < .05$. ** $p < .01$

Moderation of Life Stress on Inhibitory Control and Parenting Behaviors

In my third research question, I asked: Does exposure to greater life stress moderate the associations between maternal inhibitory control and quality of parenting? I predicted that for mothers who reported higher levels of life stress, the relationship between maternal inhibitory control and quality of parenting behaviors (both autonomy-supportive and hostile/controlling) would be significantly weaker than that observed in mothers who reported lower life stress. In the first this analyses, main effects of negative life experiences and maternal inhibitory control on quality of parenting behavior were not significant. I added my interaction term to in the next step, and it was not statistically significantly predictive of the presence of either autonomy-supportive or hostile/controlling parenting behaviors. In neither case did the addition of the interaction term lead to a statistically significant increase in R^2 . For autonomy-supportive parenting, the final model explained approximately 12% of the variance. The only significant

predictors of autonomy-supportive parenting were objective SES ($\beta = 0.20, t = 2.96, p < .05$) and child age ($\beta = 0.27, t = 3.89, p < .01$). For hostile/controlling parenting, the final model explained approximately 8% of the variance. The only significant predictor was child age ($\beta = -0.21, t = 3.76, p < .01$). See Tables 8 and 9 for a summary of the results.

Table 8

Hierarchical Regression for Moderation of Negative Life Experiences on Maternal Inhibitory Control and Autonomy-Supportive Parenting

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Objective SES	.08	0.03	0.19*	.08	0.03	0.20*	.08	0.03	0.20*
Child age	.12	0.03	0.27**	.12	0.03	0.27**	.12	0.03	0.27**
CM	-.03	0.06	-0.02	-.03	0.06	-0.04	-.03	0.06	-0.04
LES neg change				-.01	0.07	-0.01	-.07	0.07	-0.01
Stroop interfer				-.00	0.00	-0.04	.00	0.01	0.04
LESxStroop							-.00	0.01	-0.09
R^2		.12			.12			.12	
ΔR^2					0.00			0.00	

Note. $N = 175$. Objective SES = Adler's Objective SES; CM present = Child maltreatment present; LES neg change = Life Experiences Survey negative change score; Stroop interfere = Stroop interference T score; LESxStroop = interaction between LES neg change and Stroop interfere.

* $p < .05$. ** $p < .01$

Table 9

Hierarchical Regression for Moderation of Negative Life Experiences on Maternal Inhibitory Control and Hostile/controlling Parenting

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Objective SES	-.04	0.05	-0.09	-.04	0.05	0.09	-.04	0.05	-0.09
Child age	-.12	0.04	-0.21**	-.12	0.04	-0.21**	-.12	0.04	-0.21**
CM	.10	0.08	0.12	.10	0.08	0.12	.10	0.08	0.12
LES neg change				.04	0.09	0.03	.04	0.09	0.04
Stroop interfer				.00	0.00	0.00	.00	0.01	0.09
LESxStroop							-.01	0.01	-0.10
R^2		.08			.08			.09	
ΔR^2					0.00			0.00	

Note. $N = 158$. Objective SES = Adler's Objective SES; CM present = Child maltreatment present; LES neg change = Life Experiences Survey negative change score; Stroop interfere = Stroop interference T score; LESxStroop = interaction between LES neg change and Stroop interfere.

* $p < .05$. ** $p < .01$

I next ran additional post-hoc regression analyses to test a different iteration of this moderation hypothesis. To address whether objective SES moderated the effect of maternal inhibitory control on quality of parenting, I created an interaction term between mean-centered Stroop interference scores and objective SES and ran a set of hierarchical regressions for both autonomy-supportive and hostile/controlling parenting. Similar to the results for my original research question about moderation, SES did not significant moderate effects on either type of parenting,. In neither case did the addition of the interaction term lead to a statistically significant increase in R^2 . For autonomy-supportive parenting, the final model explained approximately 13% of the variance. The only significant predictors of autonomy-supportive parenting were child age ($\beta = 0.26$, $t = 3.83$, $p < .01$) and objective SES on its own ($\beta = 0.24$, $t = 3.00$, $p < .01$). For hostile/controlling parenting, the final model explained approximately 7% of the variance. The only significant predictor was child age ($\beta = -0.19$, $t = 3.76$, $p < .01$). Objective SES did not moderate the relationship between maternal inhibitory control and neither autonomy-supportive, nor hostile/controlling parenting. See Tables 10 and 11 below for a full summary of results for these analyses.

Table 10
Hierarchical Regression for Moderation of Objective SES on Maternal Inhibitory Control and Autonomy-supportive Parenting

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
LES neg change	-.01	0.08	-0.01	-.01	0.07	-0.01	-.01	0.07	-0.01
Child age	.11	0.03	0.25**	.12	0.03	0.26**	.12	0.03	0.26**
CM	-.09	0.05	-0.14*	-.01	0.05	-0.02	-.01	0.05	-0.01
Objective SES				.09	0.03	0.24**	.10	0.03	0.24**
Stroop interference				-.00	0.00	-0.03	-.00	0.00	-0.03
SESxStroop							-.00	0.00	-0.05
R^2		.08			.12			.13	
ΔR^2					0.04			0.00	

Note. $N = 200$. LES neg change = Life Experiences Survey negative change score; CM present = Child maltreatment present; Objective SES = Adler's Objective SES; Stroop interfere = Stroop interference T score; SESxStroop = interaction between SES and Stroop interfere.

* $p < .05$. ** $p < .01$

Table 11
Hierarchical Regression for Moderation of Objective SES on Maternal Inhibitory Control and Hostile/controlling Parenting

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
LES neg change	.02	0.09	0.03	.02	0.09	0.03	.02	0.09	0.03
Child age	-.11	0.04	-0.18*	-.11	0.04	-0.19*	-.11	0.04	-0.19**
CM	.12	0.06	0.15*	.06	0.07	0.08	.07	0.07	0.09
Objective SES				-.06	0.04	-0.13	-.05	0.04	-0.11
Stroop interference				-.00	0.00	-0.02	-.00	0.00	-0.02
SESxStroop							-.01	0.00	-0.12
R^2		.06			.07			.07	
ΔR^2					0.01			0.00	

Note. $N = 200$. LES neg change = Life Experiences Survey negative change score; CM present = Child maltreatment present; Objective SES = Adler's Objective SES; Stroop interfere = Stroop interference T score; SESxStroop = interaction between SES and Stroop interfer.

* $p < .05$. ** $p < .01$

CHAPTER V

DISCUSSION

The purpose of this study was to test the effects of stressful life experiences and maternal inhibitory control on quality of parenting behaviors. I was specifically interested in two types of parenting (autonomy-supportive and hostile/controlling) in a sociodemographically high-risk sample of mothers of pre-school aged children. Though research has demonstrated that greater parental stress (Crnic & Greenburg, 1990; Pianta & Egeland, 1990), maternal regulatory capacities (Crandall et al., 2015; Deater-Deckard et al., 2012), and their interplay (Mokrova et al., 2010) impact quality of parenting behaviors, few studies to date have employed observational measures of parenting and performance measures of IC (see Dunn et al., 2000 and Deater-Deckard et al., 2014, respectively for notable exceptions). Furthermore, child maltreatment is an extreme form of negative parenting that is associated with low maternal cognitive control capacity (Henschel, Bruin, & Möhler, 2013), however few studies on this topic have been conducted in populations with documented CM exposure. With this in mind, the current study was designed to address several gaps in the literature. Therefore, I sought in the current study to test associations between life stress, and maternal IC on quality of parenting in a high-risk sample (low SES and high prevalence of CM exposure), using rigorous, objective measures of the constructs of interest. I predicted that 1) mothers who experienced a higher frequency of stressful life events would exhibit more hostile/controlling and less autonomy-supportive parenting behaviors because their capacities for engaging in positive parenting were compromised by environmental demands, 2) mothers with higher inhibitory control would display a higher frequency of autonomy-supportive behaviors and a lower frequency of hostile/controlling behaviors, due to their ability to suppress less-desirable prepotent responses to

their children in favor of more pro-social, goal-directed responses, and 3) life stress would moderate the relationship between inhibitory control and quality of parenting behavior.

Specifically, in the context of greater self-reported life stress, I reasoned that the link between maternal inhibitory control and parenting behaviors would be diminished. Preliminary analyses demonstrated that SES and child age were correlated with parenting behaviors such that each was positively associated with autonomy-supportive parenting and inversely correlated to harsh/controlling parenting, and so each were included as a covariate in the analyses.

Negative Life Experiences Not Associated With Parenting

My first hypothesis was not supported; there was no significant relationship between self-reported stressful life experiences and either autonomy-supportive or hostile/controlling parenting behaviors. Broadly speaking, it has been well established that adversity, such as low SES (e.g., maternal education, income), negative life experiences, (e.g., death of a family member, divorce, loss of job), and parenting daily hassles (e.g., being nagged or whined at), in parental environments has detrimental effects on parenting behaviors. Some examples include lower rates of nurturing and involved parenting in families exposed to higher levels of cumulative risk (Trentacosta et al., 2008), less maternal warmth and responsiveness associated with higher work-family conflict (Cooklin et al., 2014), and decreased parental sensitivity related to family poverty (Blair & Raver, 2012). Previous studies on adversity in the form of life stress (measured using the Life Experiences Survey, which was used in this study) and parenting of pre-school aged children support, although somewhat tentatively, the notion that an increase in negative life experiences corresponds with harsher (yelling or criticizing) and less positive/supportive parenting (scaffolding, responsiveness, or spontaneous smiles or expressions of warmth) when parenting is measured via observational coding (Crnic, Gaze, & Hoffman,

2005; Pianta & Egeland, 1990) and self-report (Dunn et al., 2000). With this study, I had hoped to provide some clarification regarding the role of accumulated stressful life experiences on specific types of parenting (autonomy-support, hostile/control) in a high-risk sample, as previous studies in lower risk samples have yielded mixed results (e.g., stress may affect parenting differentially based on the presence of parenting daily hassles and social support). I predicted that mothers with more stressful life events over the past year (which they perceived to be negatively impactful) would exhibit less autonomy-supportive parenting and more hostile/controlling behaviors. My rationale for this was based on the expectation that mothers' capacities for engaging in positive parenting would have been depleted by environmental strain. My null findings failed to confirm this hypothesis.

In a sense, my null findings are not entirely divergent from with previous research that has yielded ambiguous results regarding the connection between quality of parenting and exposure to negative life events. My results diverge from these studies, however, due to their complete non-significance. For example, two studies that measured parenting via self-report found that negative life experiences corresponded with greater parental negativity (Crnic, Gaze, & Hoffman, 2005; Dunn et al., 2000), but only one of these (Dunn et al., 2000) reported a connection between negative life experiences and lower rates of positivity. In another two studies in which parenting behaviors were assessed through observational coding methods, the findings were mixed. One yielded ambiguous results about the relationship between negative life experiences and parenting, finding that mothers who had experienced more stressful life experiences over the past year exhibited lower rates of maternal supportiveness, decreases in structure/limit setting, and increases in hostility toward their female children, but not toward their male children (Pianta & Egeland, 1990). The other study (Crnic & Greenberg, 1990) found

no direct link between negative life experiences and parenting, except in the context of low social support. In the context of low social support, higher rates of negative life experiences were related to lower maternal support and responsiveness. Basically, the experience of negative life events may differentially activate social support networks, which was something I did not account for in this study. In sum, the current study does not provide any further clarification about whether and how negative life experiences correlate to autonomy-supportive or harsh/controlling parenting behaviors.

Child age was a statistically significant covariate in this and all subsequent analyses, such that mothers of older children consistently exhibited more autonomy-supportive and less hostile/controlling parenting behaviors. This is in line with other studies that have looked specifically at the relationship between child age and parenting (e.g., Matte-Gagne et al., 2013). Children's cognitive development and ability to act autonomously dramatically improve throughout the first few years of life, so it is likely easier for parents to engage in autonomy-supportive behavior as children develop their foundational regulatory skills. The inclusion of child age as a covariate may have contributed to the null findings detailed here.

Child sex was not included in my analytic model, as preliminary analyses demonstrated that it was not correlated with any of my study variables. Nor did I explore the possibility of differential effects of life stress on parenting based on other child characteristics. It is also interesting to note that my results were most different from the studies that assessed parenting via self-report, and slightly more consistent with those that used observational coding. Although these results should not be attributed solely to differences in measurement, it is worth considering.

Post Hoc Analyses: Higher SES Related to Presence of Autonomy-Supportive, but not Hostile/Controlling Parenting

As noted earlier, objective SES (a composite score which included household income, maternal education, and type of occupation) was significantly associated with both types of parenting in preliminary analyses and thus included as a covariate in my main analyses. That is, higher objective SES was positively correlated with a higher prevalence of autonomy-supportive parenting and negatively correlated with harsh/controlling parenting. In fact, SES remained a statistically significant predictor of parenting behaviors when other covariates and my independent variables of interest were present. Therefore, I conducted a set of post-hoc analyses to further explore the relationship between SES and quality of observed parenting. These analyses yielded a significant link between SES and autonomy-supportive parenting, such that higher SES corresponded with higher rates of warm, autonomy-supportive parenting. However there was no connection between SES and harsh/controlling parenting. I had not planned to focus on SES, as there is already robust body of research that has established the connection to quality of parenting behaviors. Specifically, aggregate measures of SES that extend beyond merely household income to also include maternal education and type of occupation are associated with quality of parenting both in cross-sectional studies (Callahan & Eyeberg, 2006; Harvey et al., 2016) and longitudinal research (Belsky et al., 2006; Waylen & Steward-Brown, 2009).

These results were in line with previous research that has demonstrated that greater stress in the form of lower objective SES corresponded with lower rates of maternal warmth and responsiveness (Callahan & Eyeberg, 2006; Cooklin et al., 2014; Trentacosta et al., 2008). This also mirrors a recent study that investigated risk and protective factors specifically related to

autonomy-supportive parenting (Harvey et al., 2016), which found that higher SES corresponded with this particular type of parenting. One possible explanation for these findings is that mothers who experience fewer socioeconomic stressors are less burdened by the strain of insufficient resources, and as such they are able to engage in a type of parenting that requires more intentionality and premeditation (in other words, autonomy-supportive parenting).

My results differ, however, from a few studies (Belsky, et al., 2006; Dunn, Davies, & O'Connor, 2000; Pianta & Engeland, 1990) in that I found no connection between harsh/controlling parenting and SES. One possible explanation is that mothers in this sample also had a high presence of documented CM (approximately half), which is typically associated with harsh/controlling parenting. Furthermore in my preliminary analyses, the presence of CM negatively correlated with autonomy-supportive parenting and positively with hostile/controlling parenting, leading to its inclusion as a covariant in my analyses. Perhaps in my sample, controlling for CM accounted for more variance in hostile/controlling parenting behaviors and rendered SES statistically non-significant (where it otherwise may have been). Furthermore, I included CM as a dichotomous variable (e.g., present or not); results may have looked differently had CM been included as a more elaborated nominal variable (type of maltreatment) or ordinal variable (severity of maltreatment).

The fact that SES was related to positive autonomy-supportive parenting and not to harsh control parenting reaffirms the importance of studying these types of parenting separately. Although they share several etiological factors, they are distinctly different and the absence of one does not necessarily indicate the presence of the other. For example, parents can be controlling but warm, or lack warmth but regard their children's behaviors with indifference/neglect. This leads to another possible explanation for the lack of connection

between SES and hostile/controlling parenting in my sample: Mothers who were not engaging in autonomy-supportive parenting may have been engaging in one of those types of parenting that were not assessed in this study.

Life Stress: Negative life experiences vs SES. Negative life experiences and SES both fit within the category of “contextual source of stress and support,” (Belsky, 1984, p. 83); however, these constructs capture qualitatively different aspects of life stress. In fact, in my data, negative life experiences and SES were not significantly correlated. A “life events approach” measures discrete instances of negative experience which tend to be low-frequency events that are “not specific to within family processes” (Crnic, Gaze & Hoffman, 2005, p. 118), while objective SES captures a more comprehensive snapshot of a family’s resources and access to social capital. Moreover, the significant connection between objective SES and quality of parenting behaviors could offer an explanation as to why the accumulation of negative life experiences over the past year was not related to parenting in my sample. Interestingly, previous studies that did find a link between negative life experiences and quality of parenting behaviors (e.g., Crnic, Gaze, & Hoffman, 2005; Crnic & Greenberg, 1990) did not control for SES. The contributions of SES to parenting likely supersede the impact of a year in which negative, but discrete and time-limited, events occur. Perhaps higher SES serves as a buffer against the effects of discrete life stressors on parenting behavior; conversely, freedom from negative life events may not compensate for a dearth of economic resources.

Furthermore, operationalizing SES by including household income, maternal education, and type of occupation has more predictive validity than simply using a measure of income alone (Callahan & Eyberg, 2006), which may be due to the fact that each of these indicators have been demonstrated to, on their own, correspond with different types of parenting behaviors. When

SES is measured in this way, it captures a more dynamic and broader range of social position and possible components of risk, including prestige, power, and economic security (Conger & Donellan, 2007; Evans, Li, & Whipple, 2013). Although these markers are often related in some way, there is empirical and theoretical evidence that each uniquely shape experiences. For example, previous studies (Carr & Pike, 2002; Neitzel & Stright, 2004; Whipple, Bernier, & Magau, 2011) have found that higher maternal education was related to more autonomy-supportive behavior during parent-child challenge tasks. Some observed that mothers with higher levels of education appeared more self-regulated during difficult interactions, encouraged their child's active role, and provided metacognitive information (Neitzel & Stright, 2004). With regard to occupation, there is a substantial body of research which suggests that beliefs and values related to parenting vary as a function of socioeconomic status, and occupational culture may have influenced this (Hoff et al., 2002). Sociologist Annette Lareau (2003) identified two distinct styles of parenting that are associated with working and middle class families as "accomplishment of natural growth" and "concerted cultivation," respectively. Accomplishment of natural growth is more frequent in working class families; it is a less involved type of parenting that emphasizes the values of child compliance and discipline. In theory, it stems from a lack of resources and stability. Conversely, concerted cultivation, seen in middle class families, provides more scaffolding and support for autonomy; its emphasis is on the values of independence and critical thinking. This conceptualization of ways that social class affects parenting and child outcomes has been well supported by subsequent research (Bodovski & Farkas, 2008; Erwin & Elley, 2011; Redford, Johnson, & Honnold, 2009; Roksa & Potter, 2011) and my findings partially align with it. In my sample, higher SES was associated with more autonomy-supportive parenting, which can be likened to "concerted cultivation."

In sum, SES is a multifaceted construct. Although each component may be related to autonomy-supportive parenting on its own, the interaction among them produces an effect that is greater than the sum of its parts. Specifically, the combination of higher economic security, maternal education, and occupational prestige provide a secure foundation from which mothers 1) are able to worry less about access to resources and can focus on the parenting task at hand, 2) have the capacity to provide supportive scaffolding and feedback as they interact with their child, and 3) are able to maintain a belief system around parenting that places value on supporting their child's autonomy.

Inhibitory Control Not Linked to Parenting Behaviors

I did not find support for my second hypothesis; I found no connection between maternal inhibitory control and quality of parenting behavior. I had predicted that mothers with higher levels of inhibitory control (as measured by performance on the Stroop Color Word test) would display a higher frequency of autonomy-supportive behaviors and fewer hostile/control ones. My rationale was that greater inhibitory control would enable parents to suppress their control-orientated behaviors and temper harsh or critical reactions in favor of engaging in warmer, more responsive and supportive parenting. I am unable to either support or refute this hypothesis with my findings.

Studies to date have explored the relationship between parenting behaviors and parental inhibitory control skills in the context of broader measurement of executive functioning, including dimensions such as working memory and attentional control.. For example, parents' inhibitory control, when considered together with indices of working memory and attentional control skills, has been linked to self-reported negative parenting (e.g., yelling, criticizing) (Deater-Deckard, Wang, Chen, & Bell, 2012; Mokrova et al., 2010). Specifically, according to

the conceptual framework proposed by Crandall and colleagues (2015), higher executive functioning generally corresponds with warm, autonomy-supportive parenting behaviors and lower executive functioning corresponds with harsher, more controlling parenting behaviors. I opted to hone in on one particular component of executive functioning with the goal of clarifying the unique relationship between inhibitory control and parenting behaviors.

Further, another measure of self-regulation referred to as effortful control captures the temperamental component of regulation; it is typically measured with self-report questionnaires. There is significant conceptual overlap between the two constructs of effortful and inhibitory control (Bridgett et al., 2013; Zhou, Chen, & Main, 2012). Several studies have found that parents' effortful control scores are positively correlated with more desirable parenting behaviors (e.g., Bridgett et al., 2011; Bridgett et al., 2013; Valiente et al., 2007). As such, higher levels of effortful control are associated with warmer, more supportive parenting and lower effortful control linked to harsh/controlling parenting. I chose to use a performance measure over self-report, which is why I focused on inhibitory (and not effortful) control.

With that in mind, my null findings are at odds with the body of studies showing that maternal executive functioning (of which inhibitory control is a component) is associated with quality of parenting. To make sense of my null findings vis-à-vis a several studies that found significant connections between measures of maternal executive functioning, effortful control and quality of parenting behaviors, it is important to keep in mind that most of this research has been conducted in low risk settings; less is known about the nature of this connection in families with higher risk home environments. In fact, this was one way I had hoped to address gaps in the literature, as my sample is one characterized by above average levels of sociodemographic

risk. Perhaps the connection between maternal inhibitory control and quality of parenting behaviors is rendered less important in higher risk settings.

It is also interesting to note that a few of the above studies did not control for SES, the importance of which is described in detail above (Bridgett et al., 2013; Turner et al., 2007; Valiente, Lemery-Chalfant, Reiser, 2007). Even though my sample was fairly homogenous with respect to risk, in that participants were predominantly from low socioeconomic households, SES still emerged as a significant predictor of the presence of autonomy-supportive parenting, further demonstrating how salient this factor may be in the development and maintenance of parenting behaviors.

Finally, although emotion regulation has long been of interest in parenting research, the attention to inhibitory control is a more recent addition in the study of parenting (Crandall, Deater-Deckard, Riley, 2015). With respect to emotional regulation, research has demonstrated that higher emotion regulation capacities correspond with more supportive and responsive parenting behaviors (Hughes & Gallone, 2010) and are inversely related to less desirable parenting behaviors such as rejection (Saritaş, Grusec, & Gençöz, 2013) and harsh control (Martini et al., 2004). Studies of parenting have tended to focus on understanding capacities for regulating emotion or attention/behavior separately, despite the fact that these two processes are closely interconnected and share similar pathways in the brain (Zelazo Qu, & Kesek, 2010). I employed a measure of inhibitory control using a laboratory task that did not have any emotional component (e.g., Stroop test). Parenting is an inherently emotional task. Perhaps had I accounted for it by including it as a covariate, the results would have looked differently. For example, the relevance of inhibitory control to parenting behaviors may fluctuate depending on the concurrent capacity for emotional regulation.

No Evidence for Moderation

My third and final hypothesis was not supported. I had predicted that life stress would moderate the relationship between inhibitory control and parenting behaviors. I anticipated that for mothers who reported a higher frequency of stressful events, the relationship between inhibitory control and autonomy-supportive parenting would be significantly weaker than in those who reported a lower frequency of stressful events. My rationale was based on previous research that demonstrated links between parenting quality and other measures of maternal executive functioning vary in more chaotic environments (Deater-Deckard et al., 2014; Mokrova et al., 2010). Given the associations between SES and autonomy-supportive parenting examined in my post-hoc analyses, I re-ran the moderation tests substituting SES for negative life experiences; however, there was no evidence for SES moderation of inhibitory control.

In a review of the literature on maternal emotional and cognitive control capacities and parenting behaviors (Crandall, Deater-Deckard, Riley, 2015), the authors note that very few studies have considered broader contextual influences and they call for future research to situate maternal cognitive control factors into broader contexts that might also influence parenting. My intention was to address this gap in the literature. Two studies that explored related questions of moderation found that household chaos moderated the connection between maternal regulatory capacities and parenting behaviors (Deater-Deckard et al., 2014; Mokrova et al., 2010), however the direction of their findings differed. The first (Deater-Deckard et al., 2014) found that in households characterized by higher levels of chaos, the link between maternal executive functioning and quality of parenting behaviors disappeared. The authors reasoned that chaotic household environments diminished the effects of maternal executive functioning on the ability to inhibit harsh/controlling parenting, which is similar to my hypothesis in the current study.

Conversely, Mokrova and colleagues (2010) found that in high levels of household chaos, the association between parental ADHD symptoms (specifically, attentional deficits) and parenting strategies was stronger. This was interpreted to suggest that compromised environments enhance parental deficits in regulation, thereby leading to less effective parenting when pre-existing deficits are present. Again, these studies were conducted in low-risk environments, and one (Mokrova et al., 2010) did not even include SES as a covariate.

Regarding the null findings for my initial moderation hypothesis, two possible explanations seem most plausible. First, as discussed above, the reporting rate for negative life experiences in my sample was extremely low, despite the heightened presence of other salient risk factors (e.g., low SES, CM prevalence). This reduced variability in life stress scores likely contributed to the observed null association between negative life experiences and parenting behaviors in my study, and it could also explain why negative life event scores did not moderate the effects of inhibitory control. Had there been more variability in negative life experiences scores, an association with parenting and a moderation effect, if it exists, would have been observable. Second, I assessed recent (as opposed to chronic) stressors, in measurement of negative life stress. However, it is possible that recent life stressors may be less important for parenting functioning than life stressors that are more chronic in nature. With respect to a divergence from previous findings documenting the moderating effect of household chaos (Deater-Deckard et al., 2014) may be tapping into a more “in your face” type of stress that interacts more with cognitive capacities than the slightly removed, less immediate stress of negative life experiences. In other words, household chaos is characterized by heightened presence of ongoing distractions in the home (e.g., noise, disorder, etc.) that reduce the efficiency of regulatory functions on which parents rely to effectively parent (Deater-Deckard et al., 2012; Wachs & Evans, 2010). In dealing with

negative life experiences, parents may be capable of compartmentalizing to an extent that allows them to shift their focus to parenting when necessary and deal with the stress associated with negative events at times when they are not directly interacting with their children. Additionally, the inclusion of several executive functioning variables as opposed to isolating individual components may lay the foundation for a more complex interaction with environmental considerations.

In an effort to further understand why my results did not align with research suggesting that the connection between maternal regulatory capacities and parenting behaviors should be moderated by environmental stress, the significance of SES must be reiterated. This also provides a possible explanation for why there were no moderation effects in my post-hoc analysis. Specifically, the variance in quality of parenting (e.g., autonomy-support and hostile/controlling) that is explained by SES may be so great on its own that variations in inhibitory control are rendered even less relevant than they were to begin with. Even in my relatively sociodemographically homogenous sample, variations in SES correspond with some (but not all) parenting behaviors. It would be worth re-testing these moderation hypotheses in a sample with more diversity in risk factors.

Strengths and Limitations

This study had several strengths, most importantly was the observational coding of parenting behaviors and use of a performance measure of parent inhibitory control. While many studies utilize self-report data, observational coding yields a more objective picture of parenting behaviors (Aspland & Gardner, 2003), as self-report measures are more prone to a variety of response biases (e.g., social desirability, recall, etc.). Although the parent-child interaction tasks were brief, they are difficult enough so as to elicit a wide range of behaviors in parents and

children that can be used to make inferences about parent-child interactions more generally (Hoffman, Crnic, & Baker, 2006). Another strength is the use of a cognitive performance measure rather than a self-reported measure; as with parenting, this provides more objective data. Additional strengths include study sample size and low frequency of missing data. With respect to limitations, the cross-sectional study design prevents assessing causality. I used measures of negative life experiences over the past year and objective SES, which are both measures of acute stressors experienced in the present moment; thus, no indication of causality could be inferred. It would be interesting, and perhaps worthwhile, to test how these measures of adversity impact quality of parenting behaviors longitudinally. Perhaps if these stressors accumulate over a longer period of time, their relevance to parenting behaviors is amplified. Finally, the participants in my sample were predominantly White, therefore one should be cautious about generalizing these findings to families of color.

Future Directions

For this study, I used a single, performance-based measure of inhibitory control alone, rather than a multidimensional measure of executive functioning, as my goal was to understand how this particular capacity to inhibit a dominant response and engage in a less habitual response related to quality of parenting. I used a Stroop task to measure IC, however there are several other performance measures that can be used, such as go/no go, flanker, or delay of gratification tasks (Eriksen & Eriksen, 1974; Forstmeier, Drobetz, & Maercker, 2011; Gomez, Ratcliff, & Perea, 2007). It would be worthwhile to see how a variety of IC measures are related to quality of parenting. Furthermore, although individual subcomponents of executive functioning are linked with different behavioral outcomes (which justifies studying them individually), their predictive effects also vary when considered together as a comprehensive battery (Bridgett et al.,

2013). In other words, in some cases the effects of executive functions are “greater than the sum of its parts.” This was true in the study by Deater-Deckard and colleagues (2012), which assessed the interplay between attentional control, working memory, and inhibitory control on parenting. I examined inhibitory control because fewer studies had looked at how subcomponents of executive functioning relate to parenting, and I wanted a more nuanced look at the relationship between executive functioning and parenting. Future studies could include both composite and individual executive functioning variables to assess how they relate to autonomy-supportive and hostile/controlling parenting. Additionally, future studies should explore ways maternal emotion regulation and inhibitory control potentially function concurrently in the context of parenting behaviors. This could include assessing maternal inhibitory control during emotionally stimulating tasks, as well as simply including measures of both in studies where quality of parenting behaviors is the outcome variable of interest.

In addition to the types of life stress explored in this study (negative life experiences, SES) and others (e.g., parenting daily hassles, household chaos), future studies might also consider the effects of minority stress, such as exposure to racial microaggressions, on the relationship between executive functioning and parenting. For example, research has demonstrated that exposure to stigma-related stressors has both immediate and chronic detrimental effects on individuals’ cognitive and emotional wellbeing (Holoien & Shelton, 2012; Wong, Derthick, David, Saw, & Okazaki, 2014). It is important to extend inquiry into factors that shape parenting practices in a variety of contexts, including the nature of how these factors relate to one another in family environments characterized by exposure to minority stress.

Conclusion

My study tested the main and interactive effects of negative life experiences and maternal inhibitory control on the presence of two important types of parenting behaviors. While I did not find support for my hypotheses, these findings suggest that nature of the relationship between life stressors, maternal inhibitory control, and quality of parenting behaviors may vary across low versus high risk samples. Moreover, post-hoc results, which yielded a positive association between higher SES and the presence of autonomy-supportive parenting, further substantiate the salience of socioeconomic factors in the expression of parenting behaviors.

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